Section III: Future Developments

Summary – The Water Pollution Control Program (WPCP) of the Missouri Department of Natural Resources is responsible to the citizens of Missouri for implementing the regulations set by the Clean Water Commission. The department functions as the state agency that administers federal and state water pollution control and environmental protection programs. The Water Pollution Control Program conducts and coordinates the various management planning efforts called for under Missouri's Clean Water Law and is engaged in a continuing planning process as required under the federal Clean Water Act.

Section III of the Continuing Planning Process concludes with comment on future development and water quality impact followed by the list of issues in water quality. This section includes a summary outline of each section of the program and brief comments on challenges the department must plan for in the future.

Future Development and Water Quality Impact

Recent census estimates indicate that Missouri continues to experience population growth in urban areas, (defined as places of 2,500 or more people or incorporated and unincorporated urbanized areas of 50,000 or more people) with 68 percent or more of its total population living in such areas. The census data also indicates that the 32 percent of the population in the state not living in urban areas is living in Missouri's farm land/rural areas, which makes up 68 percent of the state's total land area.

More core areas of Midwestern cities are seeing their metro boundaries expand and move outward. St. Louis is one of many cities to experience the sprawling that is taking place throughout the midwest.

Throughout the country each year more than 1.5 million acres of land are developed. In most communities this development consists of many individual projects built over long periods of time. The cumulative amount of land development changes the landscape of a community.

The movement towards decentralization increased dramatically in the 1990s in at least one respect: farmland being converted into other uses, both commercial and residential.

Growth and development impacts water quality. In Missouri development is occurring along interstate highway systems or where highways have been greatly improved and where people are choosing to live. The Missouri Ozarks, for instance, have attracted a large number of new residents and tourists. The growth of lake developments in Missouri; the increased demands on reservoirs, the increased demands on business sites, such as boat marinas, campgrounds and surrounding communities all translate into a more intense use of Missouri's water resources.

The distribution of population and urban and rural land use and their impact on water quality are significant factors to consider when thinking about the effects of population density in the Ozarks and in many other areas of the state. Whether land is left for production of crops or preservation of wildlife and/or whether land will be used for subdivision development, commercial development and industrial development, and the overall environmental results and

economic benefits are all elements that are due consideration. All development comes with economic benefits and costs.

Development alters the surface of the land by replacing natural cover with rooftops, roads, parking lots, driveways and sidewalks. Rainfall cannot absorb into these hard surfaces, which are collectively known as impervious cover. Recent watershed research has shown that impervious cover can have a negative impact on the quality of aquatic resources. The influence of impervious cover on aquatic systems presents a challenge to communities interested in sustainable development.

It is recognized that there are model principles that must be adapted to reflect the unique characteristics of each community and mitigate the loss of impervious cover. Not all principles apply to every site, and some principles may not always fully complement each other. While the model principles are not national design standards, they do identify areas where existing codes and standards can be changed to better protect streams, lakes and wetlands at the local level when planning, designing and building new communities.

Costs to consider for residential, commercial and industrial development are wastewater collection and treatment costs, the planning for land application and other methods of disposal of treated wastes and/or the permitted discharge of treated wastewater into the state's streams and water bodies. The Clean Water State Revolving Fund is the state's primary vehicle for providing low-cost financing for wastewater collection and treatment needs as a result of residential, commercial, and industrial development. Eligible wastewater collection and treatment projects are determined as discussed in Element 8 of this document. The Water Pollution Control Program is evaluating how projects are prioritized with the goal of developing a single system to rank both point and nonpoint source projects. Projects involving impaired waters and projects preventing degradation of the water to improve or maintain water quality are highest on the list of priorities.

Current programs offered through the State Revolving Fund include: direct loans to recipients of the state forty percent grants, programs offered to areas having large populations and good credit and/or programs offered to areas with small populations that meet income and employment criteria. The program is proceeding with the development of a statewide nonpoint source program that will upgrade or eliminate individual home treatment systems. Under this program, loans from the program to the Environmental Improvement and Energy Resources Authority will be re-loaned to individual homeowners.

Continued planning on the part of the state, local municipal governments, economic development groups, county boards and regional planning authorities, and numerous other organized interests for water quality result in continued progress in the control of both point and nonpoint source pollution for both urban and rural residents. Determining benefits and costs for sustained growth and understanding impacts to water quality resulting directly and indirectly from the urban and rural development of our lands requires both the public and private sector to make use of new tools that are developed to manage growth and change.

Water is one of the most pressing environmental considerations for the future. The Water Pollution Control Program works to provide continuous access to published information on water quality and the activities and processes described in this document. There are various web sites providing information about water issues and water resources in Missouri. Missouri's citizens are Missouri's best advocates for environmental responsibility and economic development. Please make use of the informational sites and the references listed in the Water Pollution Control Program's Continuing Planning Process document and consult the state's Nonpoint Source Management Plan available on the department's Web site.

A List of the Issues in Water Quality

Water Quality Issues

- Channelization has caused aquatic habitat degradation in 17 percent of Missouri's streams. Large channelization projects affecting many miles of streams are no longer occurring, but many short projects continue to reduce the number of miles of natural stream channels statewide. Streams that were channeled many years ago still provide poor aquatic habitat, and these streams still contribute to flooding, high water velocities and stream bank erosion.
- Eutrophication of large, recreationally important reservoirs appears to be increasing. Heavy residential development around portions of Lake of the Ozarks and Table Rock Lake threatens water quality in many small coves and shoreline areas. Water clarity in the main portion of Table Rock Lake, which was historically very clear, is declining. The large size of these lakes and rugged local topography make centralized collection and treatment systems for wastewater difficult. Increasing concentrated animal production in the watersheds of these lakes aggravates nutrient problems.
- **Mercury levels in fish** in Arkansas and Missouri appear to be increasing over time, with fish consumption health advisories in place in southern Arkansas. Atmospheric deposition, commonly referred to as acid rain, is suspected to be a major cause. Both the Department of Health and the Department of Conservation publish advisories for mercury in fish.
- **Abandoned lead-zinc mines** and their tailings continue to impact water decades after mining has ceased. Missouri's Superfund program is addressing some of these concerns, but long-term impacts are expected to remain. Although new mineral extraction operations would be managed under state permits, areas of the state that are very sensitive to disruption are being investigated for mining potential.
- Additional groundwater protection measures are needed. Missouri now has programs that
 register and inspect underground storage tanks and oversee the cleanup of leaking
 underground tank sites, protect wellheads, seal abandoned wells and close hazardous waste
 sites. A complete groundwater protection program would also include a groundwatermonitoring network and educational programs for those involved in the application of farm
 chemicals, transporters of hazardous materials and the general public.
- Concentrated animal feeding operations (CAFOs) continue to locate in Missouri. These facilities generate large amounts of animal manure and have the potential to cause serious water pollution problems. The department is also concerned about the cumulative impacts of numerous small animal production facilities.
- Evidence is accumulating that the fish and invertebrate communities of many streams in Missouri are suffering from the degraded quality of the aquatic habitat. Physical alterations

- of the channel, degraded conditions in the riparian zone and upland land use changes are all believed to be significant contributors to this problem.
- **Continuing suburban development** impacts streams with the direct loss of stream channels and removal of riparian areas together with increased storm water flows.
- Large-scale mechanized timber harvesting is a potential threat to water quality. The failure to use best management practices and consulting professional foresters increases the potential for serious water quality problems.

Future Developments

Summarized in this section are the functions of the administration, planning, permitting, enforcement, finance and engineering sections of the Water Pollution Control Program and the future challenges faced by each section.

Administration and Support

The Administration Section of the Water Pollution Control Program provides the budgeting, accounting, administrative, electronic data systems and database management functions. This section coordinates the development of activities between the regional offices, the Environmental Services Program, the Geological Survey and Resource Assessment Division and the Technical Assistance Program. Additionally, this unit oversees the Water Quality Information System (WQIS), containing information related to National Pollutant Discharge Elimination System permitting fees, inspection and enforcement.

Program Budget

Missouri utilizes multiple sources of funding to support efforts to protect the waters of the state. Missouri relies heavily upon continued support from the federal government. Missouri also relies upon dedicated-fee funds, generated from permit application fees and administrative fees on the state revolving loan fund. Programs also receive some funding from the state's general revenue fund. The General Assembly, subject to signature by the Governor, grants spending authority through annual appropriations.

Information Resources

The state maintains the Water Quality Information System (WQIS) as the central repository for key information related to water quality, permit issuance, facility location, and inspection and enforcement information.

Program Support

Administration provides necessary support for the program. This includes procurement, coordination of federal grants, budgeting, financial planning and work plans between the regional offices, Environmental Services Program, Geological Survey and Resource Assessment Division and the Technical Assistance Program.

Administration and Support – (573) 751-1300

Program Director's Office, Program Budget, Information Resources, Administrative Unit, Missouri Clean Water Commission and Rules Coordination.

Permitting

The Permits Section administers the state and federally delegated permit program National Pollutant Discharge Elimination System (NPDES) in accordance with the Missouri Clean Water Law and the Clean Water Act. These laws require the Clean Water Commission to issue notices, conduct hearings and consider all factors, comments and recommendations before a permit can be issued. This section administers a pretreatment program, requiring partial treatment of industrial wastewater before it can be discharged to public sewers, and provides technical guidance to permitted facilities.

The Department of Natural Resources anticipates providing greater protection to the waters of the state by addressing the increase in requests by Missouri industries to provide water quality permits.

New Permitting Timelines

The passage of Senate Bill 741 in 2000 imposes new requirements on the agency to process permits within a timely manner. A decision to issue or deny a site-specific permit must be made within 180 days of the receipt of an application. The timeframe for general permits is 60 days. Failure to meet these timelines may result in the forfeiture of the permit fee back to the applicant. The department must make significant changes in its permitting process in order to comply with these new requirements.

Phase II Storm Water

The U.S. Environmental Protection Agency (EPA) issued final rules for Phase II storm water permits in December 1999. EPA rules require storm water permits on construction sites disturbing areas of one acre or more, as well as storm water permits on urbanized areas with populations of 10,000 or more. These requirements will increase Missouri's permitted universe by thousands. The new federal rules also allow permit exemptions for industries that can certify that all industrial materials and activities are sheltered from storm water. Missouri will be developing rules implementing Phase II so permits can be issued by December 2002.

Permitting in Impaired Waters

Permitting new sources in impaired waters will be discussed in FY 2001 as the Water Pollution Control Program will implement federal requirements for permitting discharges of the contaminants that are responsible for the impairments. This may be especially notable in southwest Missouri where streams are impaired by nutrients that would affect virtually all new or expanded permits. Actions will likely include extensive discussions regarding the proposed new discharges and an occasional permit denial.

Proposed Permit Efficiency Improvements

The Water Pollution Control Program meetings with a stakeholder group resulted in eight recommendations to improve the efficiency of the permitting process. The eight recommendations included:

- updating the permits manual,
- improving timelines for 401 certifications,
- further defining permit processing timelines,
- revising the current design guides,

- developing a method to offer permits-by-rule,
- clarifying the requirements for permit modifications,
- identifying instances where construction permits may be exempted or waived, and
- developing procedures for offering general construction permits.

A schedule has been developed for each of these initiatives. In addition to workgroup initiatives, the Water Pollution Control Program is engaged in other areas related to permitting. The program is moving toward a watershed approach, maximizing the conversion of systems to an electronic format, developing internal data management systems to track progress on permit application reviews, enhancing coordination between regional and central office permitting staff, further standardizing permit conditions and placing issued permits on the Internet.

Improvements in Waste Management

The renewed focus on Concentrated Animal Feeding Operations (CAFOs) at the federal level is aimed at bringing consistency to the way facilities are permitted nationally. For Missouri, the plan presents an opportunity to enhance its current permitting program while increasing its assistance to the farm owners in developing sound waste management systems.

Missouri holds about 16 percent or 321 of the estimated 2,000 permits issued on CAFOs nationally. Each of Missouri's permits contains a detailed plan for managing animal waste through land application based on plant uptake of nitrogen. Detailed plans for handling wastes have been required in Missouri's rules since 1992.

In an effort to minimize the water quality impacts from the nation's approximate 450,000 animal feeding operations the EPA and the U.S. Department of Agriculture (USDA) have developed a plan entitled the *Unified National Strategy for Animal Feeding Operations*. Both EPA and USDA want to begin a two-phased approach to permitting CAFO facilities. The first phase will aim to get all larger CAFOs that have 1,000 animal units or more under a permit with a "Comprehensive Nutrient Management Plan" by 2003. All smaller animal feeding operations, with less than 1,000 animal units, are targeted to have permits within a Comprehensive Nutrient Management Plan by 2005. EPA is developing a Permitting Guidance Manual to assist state regulatory programs and the facility owners in drafting the permits. The second phase focuses on redrafting the federal rules, and eventually the permits, to reflect the latest technology on nutrient management and any recent updates to the Water Quality Standards.

Because nearly all of the CAFOs in Missouri have already received a permit and have developed a detailed nitrogen management plan, the first phase of the Unified Strategy will probably not lead to major adjustments in Missouri's permitting program. However, Missouri may still find the federal manual helpful in improving its permits. The manual proposes the development of a "Comprehensive Nutrient Management Plan," which would address all forms of nutrients, including phosphorus. Guidelines also discuss specific activities that may improve the way we regulate nutrients, such as ways to promote nutrient reductions in waste through feeding practices and addressing potential environmental concerns related to the off-site brokering of wastes. In addition to clearing new paths for resolving nutrient management issues, the manual will serve as a training tool for new permit writers and new operators on the key elements of a CAFO permit.

As an extension to the guidance manual, the EPA intends to develop another guide in view of the USDA's recent changes in their National Nutrient Management Policy and in conjunction with the development of nutrient management standards by each of the district offices of the Natural Resource Conservation Service.

Because Missouri is ahead of many other states in its permitting of CAFOs, the more farreaching changes proposed for the second phase may bring greater benefits to our state. At that time EPA will develop revised permitting rules to strengthen the existing National Pollutant Discharge Elimination System (NPDES) regulations on CAFOs.

In 1996, state law and regulations were revised to require permits for CAFOs of 1,000 animal units or larger and certain smaller operations as defined in federal NPDES rules. The law also added some new requirements for Class IA CAFOs, operations with 7,000 animal units or larger. The remainder of the Letter of Approvals issued with no-discharge design guidelines is still used as part of the permitting requirements. The voluntary Letters of Approval program now applies only to animal feeding operations that are less than 1,000 animal units and that do not otherwise require a NPDES permit. If a discharge occurs from an animal feeding operation, a permit is then required. The current state permitting rules exceed EPA minimum requirements under the NPDES regulations.

Missouri recently completed its list of impaired streams, as required by Section 303(d) for the Clean Water Act, and has begun an effort addressing these impairments by establishing Total Maximum Daily Loads (TMDLs) for the contaminants of concern. EPA's Unified Strategy issued in 1999 encourages the review of CAFOs on a watershed basis, which will be made possible with the eventual development of TMDLs.

In addition, EPA rules will require CAFOs to develop and implement comprehensive nutrient management plans that must meet USDA nutrient management standards and must be developed by a Certified Nutrient Management Specialist. New certification programs will be needed to allow members of the private sector to qualify as Certified Nutrient Management Specialists in order to meet new EPA permit requirements.

A goal is to develop multiple general permits to address specific watershed categories such as 303(d) streams, drinking water supply lakes, outstanding state resource waters and critical watersheds by the permitting and planning sections. Since the existing statewide general permit requires no discharge, most of the water quality concerns for these categories are already addressed. Due to time constraints, the department plans to issue the statewide general permits now. Additional general permits for specific geographic areas or watershed categories may be added later. The statewide general permit will switch to a series of watershed once a procedure for that approach is developed.

Permitting – (573) 751-6825

Issuance of Water Pollution Control Permits, Development of and Issuance of Multiple Facility, General Water Pollution Control Program Permits, Permit Application Review and Public Comment, Storm Water Permits for Construction and Industrial Activities

Planning

This section is the cornerstone of the program as it identifies water quality problems by reviewing water quality data and conducting environmental analysis. Electronic Basin Plans provide the analysis for the watershed approach for more comprehensive water quality management planning. The Total Maximum Daily Load process, addressing both point and nonpoint source pollution, will provide alternative control strategies for decision-makers. Water Quality Standard's criteria and the 305(b) water quality reports identify and display problems in Missouri water bodies. The planning section provides data management support to the other sections of the program and issues 401 water quality certifications after thorough review of federal permits. The Geographic Information Systems data is coordinated through this section along with the Stream Teams volunteer monitoring program and training.

The section is also responsible for maintaining and implementing Missouri's Nonpoint Source Management Plan. A major component of this plan is to provide funding for locally led water quality projects through subgrants. A number of other water quality activities are funded by subgrants administered under this section.

Water Quality Standards Triennial Review

Review of Water Quality Standards every three years is required in Section 303 of the Clean Water Act and is performed by the planning section. At least one public hearing must be held. Revised standards must be submitted to EPA, Region 7 and may contain the following: a use attainability analysis, site-specific criteria methodologies, general policies and standard revisions.

EPA review and approval must be accomplished within 60 days after submittal. If the EPA denies approval, it must submit its disapproval to the state within 90 days of the state's submittal. States having received full or partial approval may then revise their standards to meet EPA requirements. The EPA has not approved all of the changes in the required triennial reviews submitted to them in 1994 and 1996. The department is currently working with EPA for changes that will be approved when submitted with planned changes to the Water Quality Standards that are currently undergoing review.

The Water Pollution Control Program is currently completing its Water Quality Standards Triennial Review. EPA review and approval consists of a check to see all relevant elements of a standard have been submitted. EPA may review use classifications for water bodies, the state's use attainability analysis, the state's adopted criteria, the state's anti-degredation policy, state designated uses, as well as the state's general policies.

The EPA review process is not subject to formal public review and comment. The EPA's review results in either a letter of full or partial approval or disapproval. Upon approval the standards become effective.

The Water Pollution Control Program adheres to the basic triennial review and public participation process. Public hearings are held for the purpose of reviewing, revising and approving Water Quality Standards. The program has historically supplemented these minimum

federal requirements through the use of increased advisory committee consultations and additional public participation as deemed appropriate. The basic elements in this process include:

- 1) identification of issues requiring review (both new and existing),
- 2) discussion of options for each issue with the department's water quality advisory committees (including but not limited to governmental agencies, private industrial, commercial and public municipal treatment facilities, and district and county associations and others),
- 3) drafting of proposed rulemaking including necessary background and economic impacts analysis.
- 4) presentation of proposed rulemaking to the Clean Water Commission for approval with recommended public participation,
- 5) publication of the proposed rulemaking in the *Missouri Register*, for review and comment including announcement regarding time and location of public hearings along with mailing to the clean water mailing list,
- 6) forwarding of the proposed rulemaking to the Joint Committee on Administrative Rules,
- 7) preparation of proposed rulemaking including detailed comment/response documentation considering all comments received from the public, Clean Water Commission and advisory committees,
- 8) forwarding of final rulemaking to general counsel for approval,
- 9) presentation of final rulemaking to the Clean Water Commission for approval, and
- 10) publishing final regulations in the *Missouri Register* to be come effective 30 days after final publication in the *Code of State Regulations*.

The department is developing TMDL plans and implementing them as expediently as possible.

Total Maximum Daily Loads (TMDLs) and the 303(d) List

Every stream that is approved by the Clean Water Commission for the 303(d) list will have a TMDL study completed and eventually a remediation plan written. TMDL refers to the amount of a pollutant that can be "loaded" into a stream before it becomes impaired. The department is, and will be until 2009, writing TMDLs, or documents that identify impaired streams and the maximum load that will allow that stream to become as clean as is called for in its designated use. The 303(d) list contains the impaired waters of the state for which TMDLs are being determined. The 303(d) listing development process, to be carried out every four years under the Clean Water Act, is an opportunity for the public to become involved in the listing or delisting process. TMDLs address nonpoint source pollution and habitat degradation as well as traditional point source pollution. The loading of pollutants to a stream from all sources is considered.

Attempting the complex task of identifying nonpoint source pollution will result in the opportunity for the local citizens and watershed groups to participate in finding solutions for impaired water resources. Funding for cost share and installation of best management practices will be targeted to TMDL streams. Local stakeholders and voluntary action on the part of landowners generate the best solutions for water resource problems.

Section 303(d) of the Clean Water Law requires that states identify those stream segments and lakes for which effective water pollution control measures are not presently in place. States are

also required to conduct TMDL studies for those waters to determine measures needed to remove the water quality impairment and are eventually required to implement the needed measures.

Missouri's final TMDL documents, reflecting comments, are submitted to the EPA. EPA may accept Missouri's final TMDLs or generate their own version under provisions of section 303(d). Strategies and schedules for TMDL development and implementation with several appendices and updates on the 303(d) process are published on the department's Water Pollution Control Program Web site http://www.dnr.state.mo.us/deq/wpcp/faqwpc.htm.

Nonpoint Source Water Pollution

It appears that the federal government is continuing to place an increased emphasis on nonpoint source water pollution. Funding for Section 319 of the Clean Water Act, which funds the department's nonpoint source program as well as local education and restoration projects, has increased substantially beginning in 1999. Along with increased funding has come requests from EPA for increased accountability for those funds. The department will expand its use of the Grants Reporting and Tracking System to address this need at the federal level. Projects funded with 319 monies will also be required to include more specific quantification of environmental impact, such as reduction in pollutant loading to waters. In some cases, this will be done in conjunction with the TMDL process.

In 2000, Missouri received EPA approval of its upgraded Nonpoint Source Management Plan. The department will be challenged over the next several years to achieve the ambitious goals of this plan, which include achieving the designated use in 75% of waters impaired by nonpoint sources (based on the 1998 303(d) list), among others. Continued emphasis on inter-agency collaboration will be instrumental.

Geographic Information Systems

The Water Pollution Control Program has been proactive in the implementation of Geographic Information Systems (GIS) into Missouri's National Pollutant Discharge Elimination System (NPDES) permitting program. Using unique ArcView projects, extension and tools developed by the planning section, permit writers are now able to provide accurate geographic and hydrographic information for all general and site-specific NPDES permits. Implementation of GIS into Missouri's NPDES permitting program has helped streamline the permitting process within the Water Pollution Control Program and improve the accuracy of facility information.

Future planning issues involve the integration of TMDL and nonpoint source data into the environmental decision-making process. To facilitate this process, it is important to integrate high spatial resolution and remote-sensing technologies with GIS for use in land-use/land-cover change detection. Classification is accomplished as these technologies become more affordable.

The integration of GIS with Web-based technologies will provide data and information while Internet mapping software will allow the department to more effectively communicate with the public about water quality issues.

Groundwater Protection

In Missouri, groundwater is included in the definition of "waters of the state" and receives the same level of protection as surface waters. Missouri does not have an aquifer classification

system or otherwise differentiate between groundwater based on its attributes. The Missouri Water Quality Standards specify criteria to be attained in groundwater aquifers (see 10 CSR 20-7.031). The department is preparing a groundwater remediation rule that will outline the process to be used in establishing clean up standards for sites with contaminated groundwater. The U.S. Geological Survey in Rolla, Missouri provides monitoring information on well-water levels when requested by the Water Pollution Control Program.

Planning Section – (573) 751-7428

Water Quality Standards, Water Quality Based Permits, Nonpoint Source Control Coordination and Initiatives, Water Quality Certifications, Basin Planning, Water Quality Monitoring, Watershed and Clean Lakes Planning, Total Maximum Daily Load Planning, and Geographic Information Systems

Information noted above or related information may be requested from at the address below as well as data and comments regarding the 303(d) listing process :

Planning Section Water Pollution Control Program Missouri Department of Natural Resources P.O. Box 176 Jefferson City, MO 65102

Fax: 573-526-5797

E-mail: nrmadrj@mail.dnr.state.mo.us

E-mail: nr@dnr.state.mo.us

See http://www.dnr.state.mo.us and the Water Issues page for several links including links to the Continuing Planning Process and the Water Resources Program.

Missouri Water Quality Standards are in PDF format and will require Adobe's Acrobat Reader to view or print.

Finance

The Financial Services Section administers several state and local federal grant and loan programs that provide assistance to local governments for construction of water and wastewater treatment and storm water control facilities. The Municipal Wastewater Treatment Financing is a cooperative effort of the Missouri Department of Natural Resources, the Missouri Environmental Improvement and Energy Resources Authority and the Missouri Clean Water Commission. The Animal Waste Treatment Financing is a cooperative effort of the Department of Natural Resources, the Missouri Department of Agriculture, Missouri Agriculture and Small Business Development Authority and the Missouri Clean Water Commission.

Clean Water State Revolving Fund Program

The Missouri Department of Natural Resources continues to finance construction projects under the State Revolving Fund Loan Program. This loan program provides funds as low-interest loans that are repaid and loaned again. Federal funding through the EPA originally provided the initial start for the Clean Water State Revolving Fund (CWSRF) program. The state is authorized to provide state matching funds for the CWSRF program through the issuance of State Water Pollution Control Bonds.

The state received its first federal money to begin its revolving loan fund in June 1989. Recognizing that Missouri's wastewater treatment needs far exceeded the available funds, communities need a full 20-year loan program for monies earmarked for storm water and rural water and sewer grant programs as well as wastewater treatment works. The decision was made to use a leveraged loan program because the department determined that it was in the best interest of the state to support as much water pollution control facility construction as possible.

The public entity's bonds are purchased by the Environmental Improvement and Energy Resources Authority (EIERA) and resold. The EIERA operates as a financing conduit for state environmental projects. EIERA bonds have an AA rating, which is much higher than many communities can attain in the public market, thus providing a lower interest rate. The bond proceeds then are put to work in an interest-bearing fund account for construction. The federal and state funds match these construction funds as they are utilized and are placed in an interest-bearing account. These earnings are used to offset interest charges, thereby providing the desired subsidy.

When EIERA bondholders are due interest, the interest is drawn off the construction and reserve accounts. Because the interest on the earnings provides a subsidy to the State Revolving Fund loan recipient, the recipient pays only the amount needed to complete the interest payment, or about 30 percent of total interest cost for wastewater participants.

Because of leveraging, 29 communities currently have projects under way that would not have been funded with federal and state funds. There are still federal funds left for future projects. Due to subsidized interest rates on loans to date, both small and large communities save with this type of program funding.

Expanded Use of the State Revolving Fund

Missouri has continued to consider expanded uses for the State Revolving Fund. One of the new initiatives is a low-interest loan program developed in cooperation with the Missouri Department of Agriculture, which aids small farmers in financing animal waste treatment facilities. This program is key to reducing nonpoint source pollution, which is a growing state concern. The program is the most comprehensive in the nation and has received considerable national attention.

Other programs being considered for development are those for individual wastewater treatment system upgrades or elimination and wetland restoration. Additional projects for consideration are brownfield clean-ups, agriculture best management practices, protection of wetlands and riparian corridors, landfills, voluntary cleanups, abandoned mine lands, superfund remediation and others. Loan recipients for these types of projects are frequently homeowners, small businesses, farmers, growers, dairyman and others in the private sector.

Small Community Financing

The Missouri Department of Natural Resources has always attempted to finance a broad range of municipal wastewater projects. Many smaller communities cannot afford loans large enough to meet all their needs. Although there is considerable competition for the limited grant funds, a 40 percent grant program is offered for these communities. A direct loan program provides the other 60 percent, making a complete financing package for these communities possible.

Federal Allocation for Missouri

The next federal allocation for Missouri in 2001 is projected to be about \$37 million, down from a high of \$57 million in 1991. The department must carefully administer the fund in order to continue the program's success.

The Missouri State Revolving Fund has been extremely successful in accomplishing its mission to protect and enhance the water quality of the state. There still is much work ahead as many communities do not have collection systems and do not have treatment plants that can meet their required limits.

The need for nonpoint source reductions continues to rank as Missouri's highest water quality concern. Rapid urbanization, increased runoff and intensive agricultural practices continue to place a heavy load on our streams. Dwindling federal assistance in the face of new initiatives will require more state and local resources if we are to preserve and enhance our state's water quality for future generations.

Finance – (573) 751-1192

Grants and Loans for Wastewater Treatment Systems, Evaluation of Wastewater Treatment Needs, Prioritization of Project Funding and Management, Construction Project Review and Coordination

Enforcement

Enforcement monitors regulated facilities for compliance with the Missouri Clean Water Law, regulations or permits and reviews regional office and water pollution unit activities for consistency with regulatory requirements. This section initiates actions to encourage or compel compliance where the responsible party does not voluntarily comply to ensure that municipal wastewater treatment plants are under the responsible charge of individuals who can effectively operate and maintain them. Enforcement also is involved in the upkeep of the department's data systems to ensure ready availability of basic compliance information.

The focus of the Water Pollution Control Program enforcement section is on the continued enforcement of the Missouri Clean Water Law and the department's rules. Phase two land disturbance, sanitary sewer overflow and combined sewer overflow are very high profile areas where enforcement will become more involved. Concentrated animal feeding operations also remain a major issue due to their controversial nature. The enforcement section will continue to update its inspection and maintenance procedures and interagency cooperative agreements on an ongoing basis to improve coordination and efficiency.

Enforcement – (573) 751-1820

Development and Coordination of Case Information Enforcement Efforts, Compliance Schedule Coordination and Development, Missouri Attorney General's Office and Environmental Protection Agency (EPA), Enforcement Referrals, Collection and Review of Facility Inspection Information, Determination and Reporting of Facility Requirements

Engineering

The engineering section provides technical assistance to grant and loan recipients, consultants, animal feeding operations, concentrated animal feeding operations, regional offices and other parties to ensure the proper planning, design, construction and operation of wastewater treatment facilities. This section reviews engineering documents submitted for compliance with department rules and sound engineering practices. Construction permit applications for wastewater facility projects that comply with the rules are issued following the review process.

Missouri is one of the few states with membership on the Ten States Standards Committee and has chaired that organization. The committee develops and maintains wastewater design guidance that is used around the world.

The Water Pollution Control Program reviews subdivision submittals under the current regulations. Developments in sensitive geological areas and areas with poor soils for on-site wastewater treatment may be required to install wastewater collection systems.

Engineering – (573) 751-6650 or 1-800-362-4827 for information

Engineering Documents For Wastewater Collection and Treatment Systems, for projects receiving financial assistance from the department; Engineering Documents For Animal Waste Management Projects; Development and Interpretation of Design Rules For Water Pollution Control Projects